

VIII. Note on an inequality in the Height of the Barometer, of which the Argument is the Declination of the Moon. By Sir J. W. LUBBOCK, Bart., Treas. and V.P.R.S.

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IN the Companion to the British Almanac for 1839, I inserted some results which were obtained with a view of ascertaining the influence of the moon on the barometer and on the dew-point. Mr. LUKE HOWARD's researches on this subject having recalled my attention to that paper, I find some results which I then gave seem to indicate that the moon's position in declination influences the barometer. In order to render this more manifest, I shall now combine all the observations given in p. 3*, (and here recapitulated) in three categories. These observations correspond in part to different angular distances of the moon from the sun (or times of transit); but as the inequality of the Ocean, of which the argument is the moon's declination, is independent (or very nearly so) of the time of the moon's transit, it is probable that so also is that in the height of the barometer. In this case we may with propriety combine in the same category observations which correspond to similar *declinations*, although to different times of transit.

The following are the results :

| No. of Observations. | Moon's Declination. | Moon's Parallax. | Height of Barometer. | Thermometer Attached. |
|----------------------|---------------------|------------------|----------------------|-----------------------|
| 78 | 21°·1 | 57·4 | 30·063 inch. | 69·0 |
| 167 | 15°·1 | 56·9 | 30·000 | 67·7 |
| 93 | 4°·4 | 56·5 | 29·060 | 67·7 |

This seems to indicate an elevation of nearly one-tenth of an inch for seventeen degrees of declination. The inequality has a contrary sign to the inequality of the same argument in the Tides of the Ocean.

First Category.

| No. of Observations. | Moon's Declination. | Moon's Parallax. | Height of Barometer. | Thermometer Attached. |
|----------------------|---------------------|------------------|----------------------|-----------------------|
| 12 | 21°·7 | 58·3 | 30·022 inch. | 69·7 |
| 13 | 21°·6 | 58·5 | 30·091 | 69·9 |
| 13 | 20°·2 | 56·8 | 30·057 | 67·2 |
| 16 | 21°·8 | 56·4 | 30·106 | 67·6 |
| 12 | 21°·2 | 56·7 | 30·037 | 69·4 |
| 12 | 20°·3 | 58·0 | 30·068 | 70·5 |
| 78 | 126°·8 | 344·7 | 180·381 | 414·3 |
| Average.. | 21°·1 | 57·4 | 30·063 | 69·0 |

* Companion to the British Almanac, 1839.

Second Category.

| No. of Observations. | Moon's Declination. | Moon's Parallax. | Height of Barometer. | Thermometer Attached. |
|----------------------|---------------------|------------------|----------------------|-----------------------|
| 15 | 18°9 | 57·6 | 30·078 | 67·3 |
| 13 | 16°9 | 57·5 | 30·078 | 69·1 |
| 12 | 18°5 | 56·5 | 29·926 | 67·3 |
| 14 | 19°8 | 57·1 | 30·036 | 67·3 |
| 14 | 15°1 | 56·4 | 29·901 | 68·5 |
| 15 | 17°5 | 57·3 | 30·048 | 68·4 |
| 14 | 13°0 | 57·1 | 30·057 | 69·2 |
| 14 | 10°1 | 56·4 | 29·932 | 68·3 |
| 16 | 14°5 | 56·3 | 29·921 | 65·9 |
| 13 | 12°8 | 56·3 | 29·932 | 66·6 |
| 15 | 10°3 | 57·5 | 29·976 | 67·2 |
| 12 | 14°8 | 57·9 | 30·119 | 68·2 |
| 167 | 182°2 | 683·9 | 360·004 | 813·3 |
| Average.. | 15°1 | 56·9 | 30·000 | 67·7 |

Third Category.

| No. of Observations. | Moon's Declination. | Moon's Parallax. | Height of Barometer. | Thermometer Attached. |
|----------------------|---------------------|------------------|----------------------|-----------------------|
| 15 | 7°0 | 56·7 | 30·007 | 69·7 |
| 15 | ·2 | 56·4 | 30·009 | 69·3 |
| 16 | 4°3 | 56·4 | 29·986 | 68·4 |
| 17 | 9°0 | 56·4 | 29·880 | 66·3 |
| 14 | 1°7 | 56·2 | 29·941 | 65·9 |
| 16 | 4°2 | 56·9 | 29·939 | 66·6 |
| 93 | 26°4 | 339·0 | 179·762 | 406·2 |
| Average.. | 4°4 | 56·5 | 29·960 | 67·7 |